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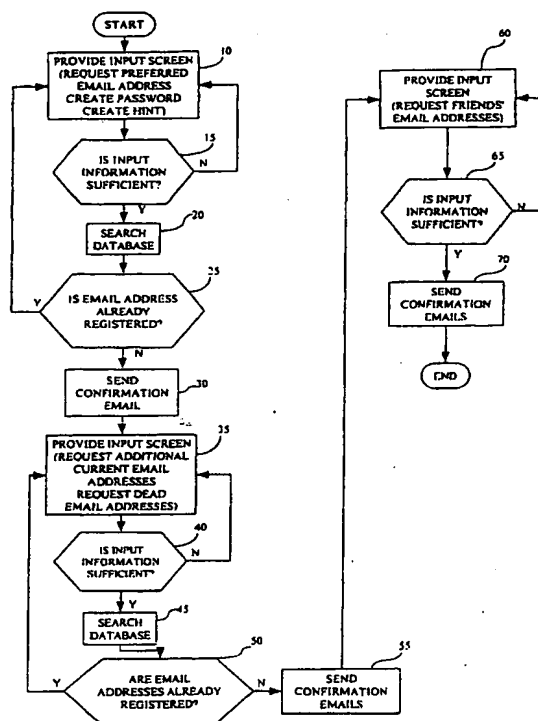
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(54) Title: **ELECTRONIC IDENTIFIER STORAGE AND RETRIEVAL SYSTEM**



(57) Abstract: The present invention is an accessible electronic database of electronic identifiers, both old and new of a registrant, that permits visitors to the system to enter an identifier and to receive a preferred electronic identifier for that registrant.

WO 01/06497 A2

ELECTRONIC IDENTIFIER STORAGE AND RETRIEVAL SYSTEM

SUBJECT MATTER OF THE INVENTION

1. Field of the Invention.

5 The present invention relates to a system for storing and retrieving electronic identifiers, and, more particularly, an interactive system for creating and maintaining a searchable database of old and new electronic identifiers, such as e-mail addresses.

2. Background of the Invention.

10 Most Internet users have multiple e-mail addresses (e.g. austin@freshaddress.com). These electronic addresses are unique ways of reaching an individual, but are not necessarily permanent throughout one's life. Electronic addresses change for many reasons, including when the individual moves, changes employers, or selects a different Internet service provider. Instead of changing or letting an address
15 lapse, some people will maintain multiple addresses. For example, someone may obtain an address through school, add a personal address, and obtain an address from work. Still others maintain multiple Internet service providers to mitigate access problems, and each ISP typically yields at least one e-mail address. The result is that a single individual or entity may accumulate many addresses over time.

20 When an individual changes his e-mail address, he must notify friends, relatives, and business associates of the new contact information. There are also numerous electronic services and businesses that need updating. Inevitably, not everyone is notified, and those who are not notified are left with an e-mail address that no longer functions or works -- a "dead" address. When e-mail is sent to a dead address the sender
25 typically receives a message informing them that the message was undeliverable, but not providing a current e-mail address for the intended recipient. Other old addresses may not be dead, but rather out of favor with its owner such that e-mail should not be sent to that address.

30 The same problems exist for other electronic based identifiers. For example, such identifiers can include homepages having URLs with a unique second level domain name or a common second level domain name shared by many other individuals and

DETAILED DESCRIPTION OF THE INVENTION

The present invention comprises a system which can be deployed as a web site on the Internet, having three primary components: registering (FIG. 1), searching (FIG. 2), and updating (FIG. 3). Through the use of the system, old and new electronic identifiers are interrelated so that a visitor to the system can find the preferred identifying information about a registrant with the system. While the embodiment described herein relates to e-mail addresses, the system could be readily adopted to accommodate other electronic identifiers, such as URLs, ICQ #s, and chat handles.

10 Registration Process

The registration component of the present invention is best illustrated in Fig. 1. In this process, the registrant enters his old and new e-mail addresses into the system. Variations of the precise process should be obvious to one of skill in the art, and those variations are included within the scope of this invention.

15 As a first step 10, the "soon to be" registrant must first enter his preferred address followed by a password. The preferred address may not be the only viable address for the registrant, but rather is the e-mail address he prefers others use to contact him. As a validity mechanism, the registrant must accurately retype the selected password. A password hint is also available in the preferred embodiment in case the registrant forgets his password in the future. Preferably, the system also checks to make sure that: the password is not contained within the preferred address; the hint does not contain the password; the password is not easy to guess; and the password contains a specified minimum number of characters. A typical interface is used such as a graphical button so that the registrant may indicate when he has finished entering the required information.

20 Validation steps 15, 20, 25 are then performed to ensure among other things that: the preferred address conforms to the standard e-mail format 15; is unique 20 in comparison to other names in the system; and that the registrant has not already registered that e-mail address 25.

30 Additional features of the system provide for privacy options (not shown) which are intended to reduced unwanted e-mails, including spamming. For example, registrants would be given the option to have their preferred address returned to a visitor as a graphic. Or, similarly, the system would require answers to specific questions about

-5-

allow each newly entered address to be marked as dead or current. Dead addresses are addresses which are non-functioning, and current addresses are functioning but are not preferred by the registrant to be used for e-mail by visitors to the system. Validation steps 40, 45, 50 are then performed to ensure that all e-mail addresses conform to the standard e-mail format and for other issues as described in conjunction with steps 15, 20, 25 above. After these steps, a confirmation e-mail 55 may be sent to each e-mail address, whether current or dead for the purposes noted above with regard to the confirmation e-mail 30 described in conjunction with the preferred address. This process will be discussed in more detail below.

Once the current and/or dead addresses have been validated, which may or may not include results from the confirmation e-mail step 55, the registrant is queried 60 for e-mail addresses of at least one entity to be contacted in the event that the registrant's entered information becomes outdated. The registrant may also be prompted to enter his own name so that the contact or contacts can receive a notification from the system. A simple validation step 65 is then performed to ensure that all entered contact e-mail addresses conform to the standard e-mail format. Preferably, confirmation e-mails are then sent to the enumerated contacts 70. Here too, the recipient, if so desired, may object to or otherwise modify the contact information received from the system.

Having finished the complete registration process, the registrant is notified that he is registered with a preferred address; that he will receive a confirmation e-mail with information about the registration; and that he should update his registration where necessary.

In another embodiment, the confirmation e-mail steps 30, 55, 70 may be launched near the completion of the registration process. Similarly, validation steps may occur at different times during the process. To maintain data quality, at least the preferred address is periodically sent e-mails by the system. In all cases, bounce-back or protest e-mail responses are monitored, so that the data can be handled as necessary. This is discussed further in conjunction with the periodic e-mail process described with FIG. 5 below.

In the event that one or more of the registrant's addresses are not unique in comparison to other names in the system, the registrant may be prompted to enter

-7-

is going to send an e-mail over the system. Finally, the system may indicate to the visitor the preferred address, the date of registration or last update by the registrant, or other information associated with the registration.

If the preferred address is known by the system to be suspect, such as through a bounce-back to a periodic e-mail, the visitor may also be warned that the preferred address may not be accurate or functioning. In the event that the visitor knows the preferred address to be suspect, such as through a previous bounce-back to an e-mail, a mechanism may be provided for the visitor to self-report the suspect preferred address. In one embodiment, a graphical button will be provided so that the visitor can indicate a suspect preferred address.

The searching of a particular record by a visitor may be stored as statistics for the registrant. The registrant may later visit the system and obtain the information which may include identification of the visitor and the date and time visited.

In the event that the system found no match to the search query, an option would be provided to notify the visitor once the preferred address was known. Such an option would be made available to the visitor through typical graphical and textual interfaces, and would require the visitor to enter appropriate contact information.

As a further feature, if the preferred address is not known by the system, a heuristic table is consulted. This table contains a list of unrecognized queries and the likely corrections. The table is generated by creating a list of common misspellings to commonly used domain names or changes to commonly used domain names. For example, if it is determined that a common misspelling of the domain name freshaddress.com is freshadress.com, then the table will refer to freshaddress.com for all appearances of freshadress.com. Similarly, if the provider of freshaddress.com changes all e-mail addresses to freshaddressinc.com, then the table would match those two addresses. If an entry is found in the table, the visitor is notified of his possible error and the suggested correction. The system may then prompt the visitor to perform a corrected query.

30 Updating Process

The updating process (Fig. 3) permits a registrant to change any part of his database information. To validate his identity, the registrant is first prompted 125 for his

-9-

When updating the addresses, the registrant is also provided the option to add textual or graphical features for existing or new addresses. In addition, if the registrant desires, some of the privacy features may be implemented to preclude unwanted e-mail. When completed, the registrant also has the option to forward any new preferred address to all contacts or any other list of addresses, including from an address book that the registrant may have running in conjunction with the system.

To change passwords, the registrant is asked to enter his old password, his new password and a new password hint, and the registrant is asked to reenter his new password for confirmation. Processing modifications to these records are similar to step 10 described above.

To change contacts, the registrant is presented with his previously entered contact information including all existing contact e-mail addresses and a graphical button to add new contacts. As the registrant clicks on the item to be changed, text boxes or other known modification interfaces are made available. Upon acceptance by the registrant of the accuracy of the information entered, the information is validated, and confirmation e-mails 145 are sent as discussed above.

Confirmation E-mails

Confirmation e-mails, as illustrated in FIG. 4, are sent 30, 55, 70, 145 to every registered preferred, current, dead and contact address, as noted throughout this description, primarily as part of the registration process (FIG. 1) and the updating process (FIG. 3). Each mailing is tracked over a period of time, typically two days, to determine whether a bounce-back message is received 160 indicating that the confirmation was undeliverable. The system recognizes the difference between bounce-back messages and responses, including automatic replies. E-mails sent to current, preferred, and contact e-mail addresses are expected to arrive successfully. E-mails sent to dead addresses are expected to bounce-back. Thus, if an e-mail bounce-back to a preferred, current, or contact address is not received 165, the address is marked accurate 170. For a dead address with no bounce-back, the address is marked as suspect 175 and is subject to further processing such as notification to the registrant of a potential problem. Similarly, if an e-mail bounce-back to a dead address is received 180, then it is marked accurate 170. Since a server may be down or an e-mail may bounce-back for

-11-

or a network of computers. For example, the system may be used in conjunction with commercial e-mail systems such as those offered by Microsoft (Outlook) or web-based e-mail systems such as Hotmail. As such, when the registrant sends an e-mail, the system will be searched and the e-mail address for the recipient (if a registrant) will be confirmed or updated before the e-mail is sent.

Similarly, as shown in FIG. 6, target e-mail lists or e-mail address books may be forwarded 275 to the system for review of each of the target e-mail addresses 280. The review is similar to that undertaken during the search process noted above. However, with larger databases that are being reviewed, the system will either correct the actual information in the delivered database or provide a table of the delivered addresses and the preferred address for those in the system 285. An alternative is to have a series of bounce-backs sent to the system 290. The system culls the bounce-backs 295 for each address used in the failed e-mail. These e-mail addresses become the targets for the searching process described above.

Additionally, a connection to the system may be provided in standard bounce-back e-mail messages so that the recipient of such a message can use the system to search for a preferred address. In a preferred embodiment, a link will be provided in the bounce-back message to a web site on the Internet where the recipient can use the system.

Having described this invention in detail, those skilled in the art will appreciate that numerous modifications may be made thereof without departing from the spirit of this invention. Therefore, it is not intended that the scope of this invention be limited to the embodiment illustrated and described. Rather, it is intended that the scope of this invention be determined by the appended claims and their equivalents.

What is claimed is:

-13-

8. The system of claim 7, wherein said electronic identifiers are e-mail addresses, and said confirmation process comprises sending an confirmation e-mail to each of said functioning electronic identifiers from said series of electronic identifiers, monitoring said confirmation e-mail for bounce-back messages or no response, and marking said
5 electronic identifiers as suspect if a bounce-back message is received or accurate if no response is received.

9. The system of claim 1, wherein said electronic identifier is an email address, and a plurality of e-mail bounce-backs are individually culled by the system to create said
10 target e-mail addresses for said searching process.

10. The system of claim 1, further including a heuristic table having a list of unrecognized electronic identifiers and likely corrections, and said electronic identifiers provided during said registration process and said searching process are compared to said
15 table, and said likely corrections are returned as a response to the visitor.

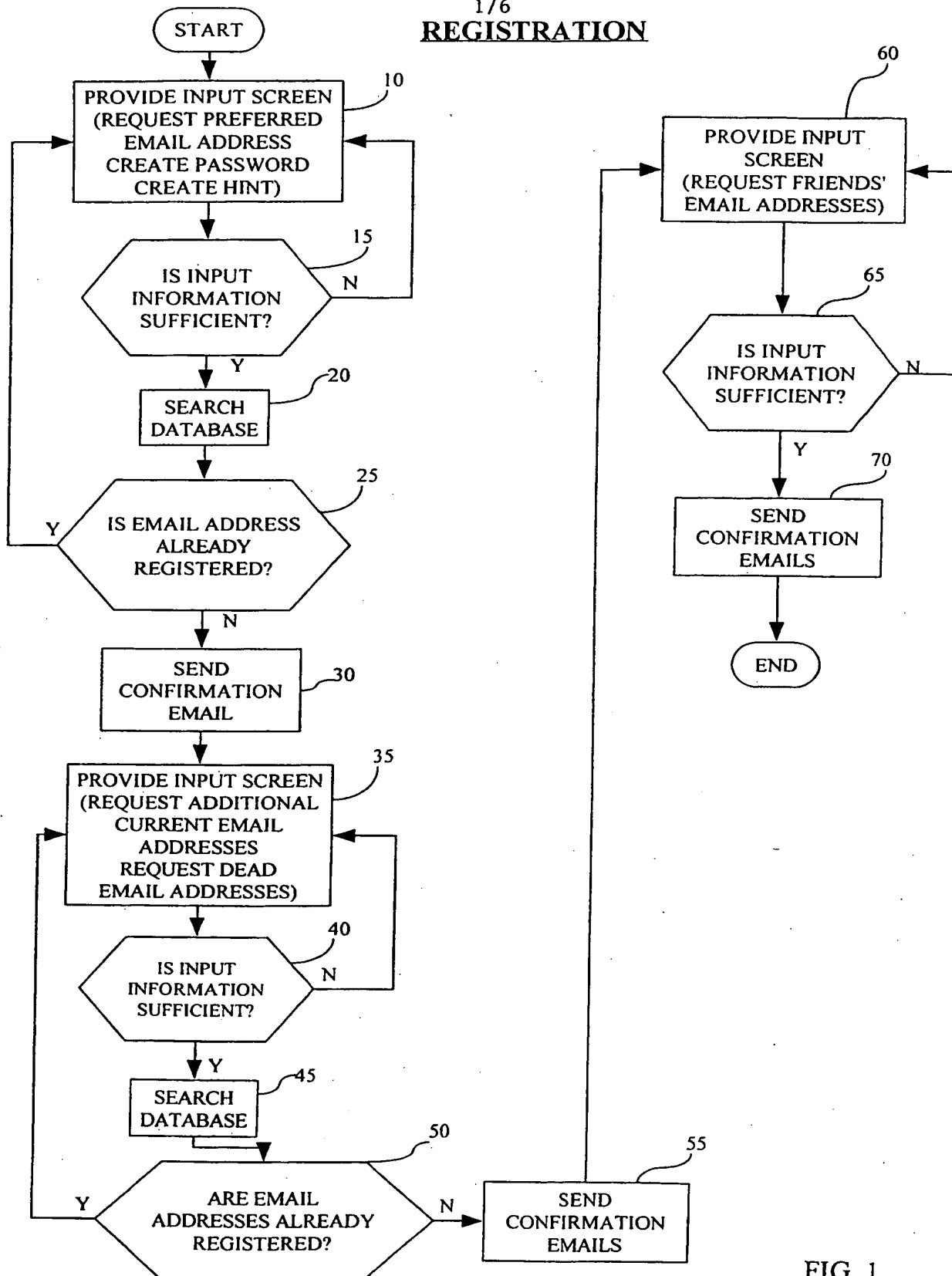
1/6
REGISTRATION

FIG. 1

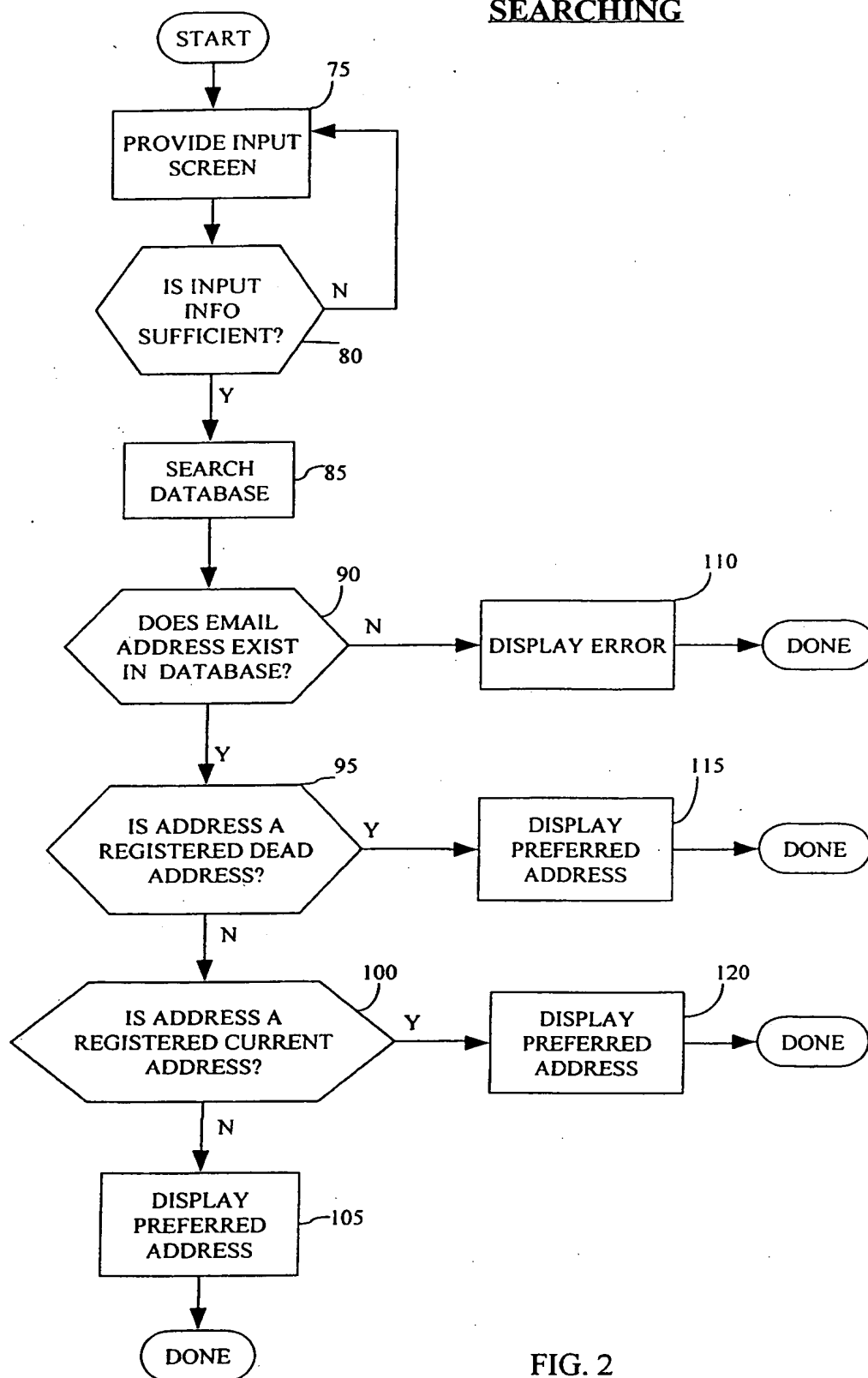
2/6
SEARCHING

FIG. 2

3/6
UPDATING

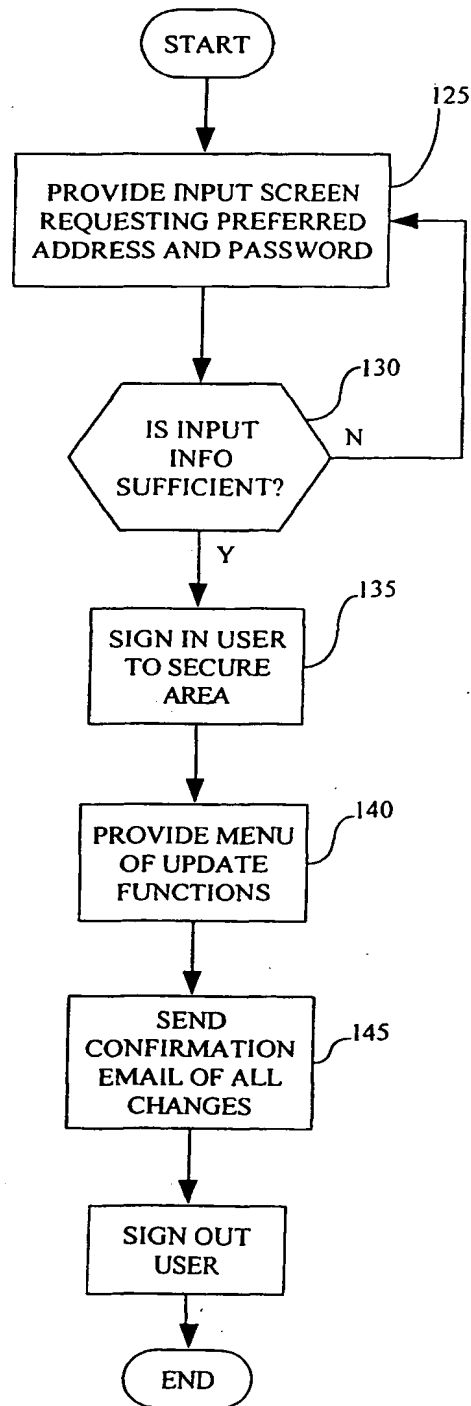


FIG. 3

4/6

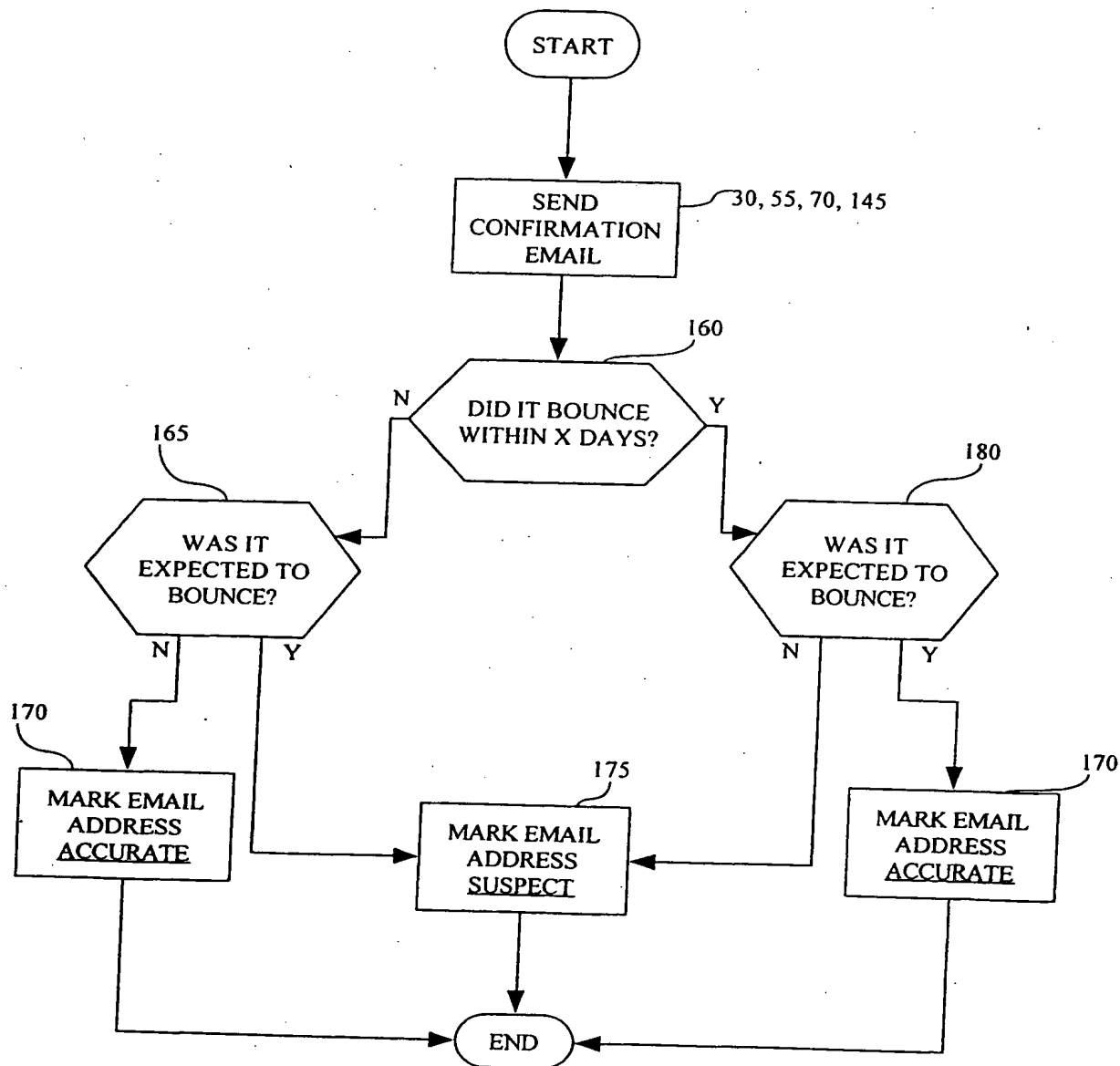
CONFIRMATION E-MAILS

FIG. 4

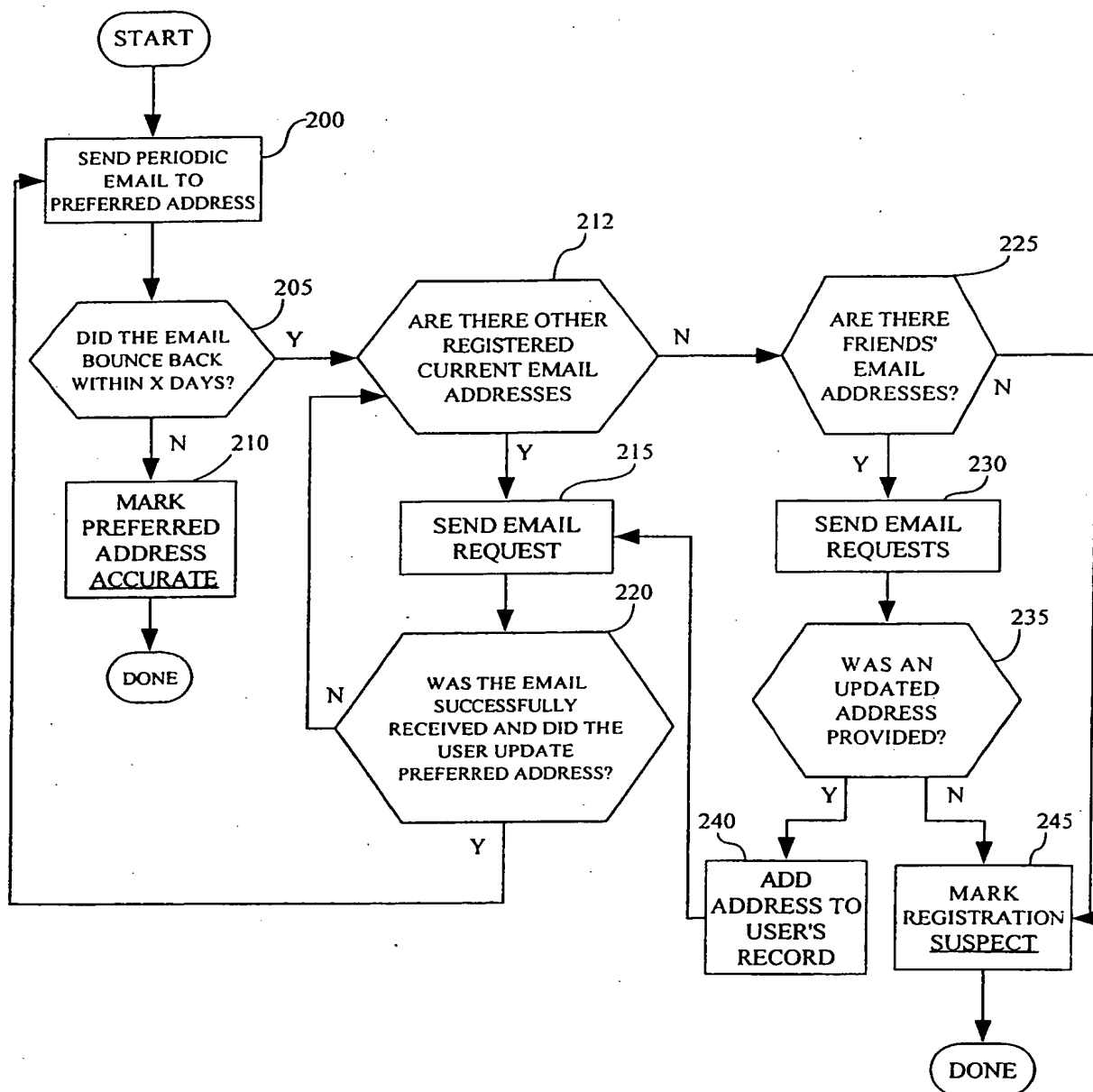
5/6
PERIODIC E-MAIL

FIG. 5

6/6

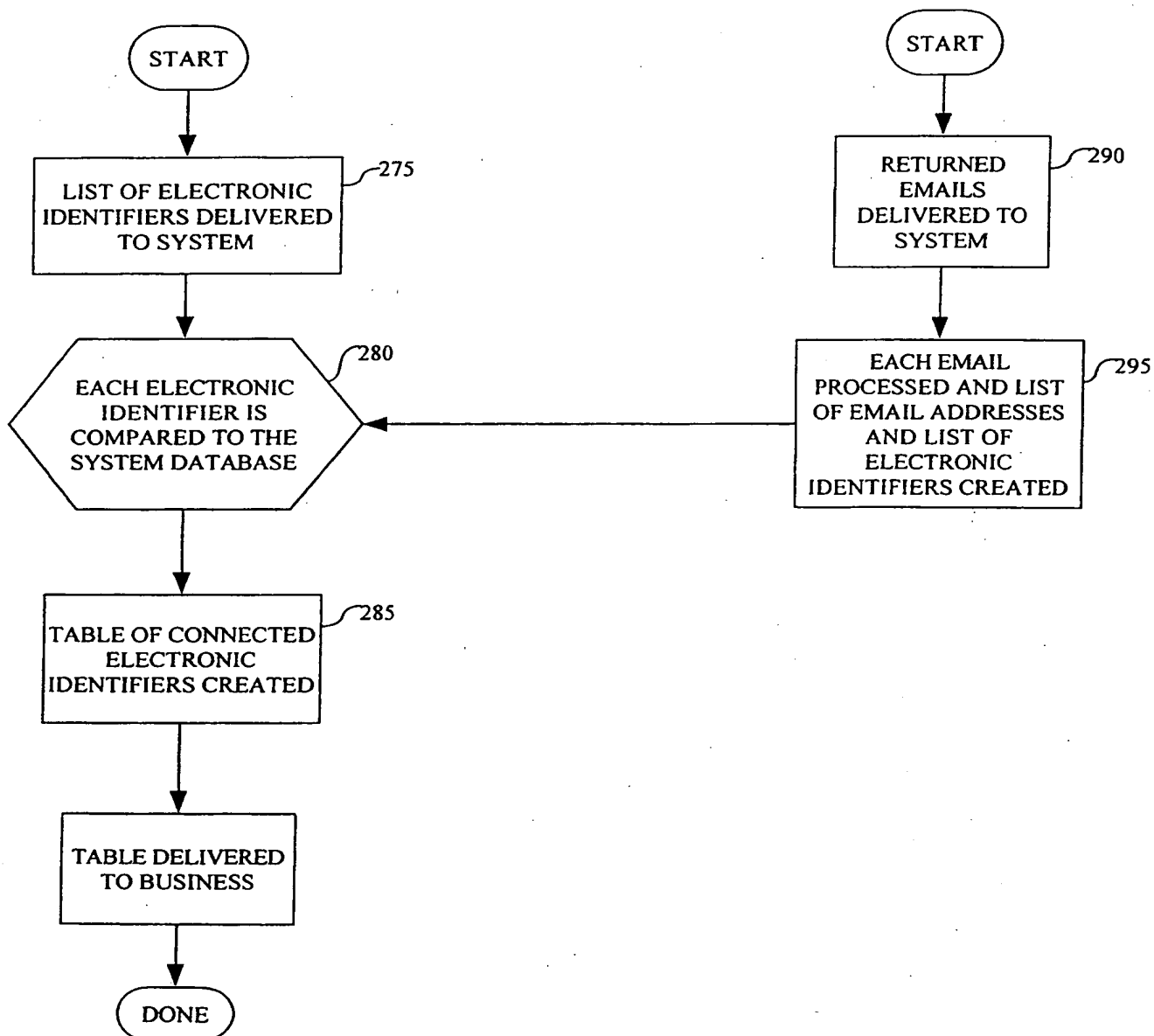
BUSINESS FRESHENING

FIG. 6